SYSTEM AND METHOD FOR ITERATIVE DECODING OF REED-MULLER CODES

ABSTRACT OF THE DISCLOSURE

A system for soft-decoding of Reed-Muller coded information has one or more rows of decoding blocks, each decoding block having a soft-output device and a Reed-Muller message passing device. A first soft-output device of a first decoding block processes a coded signal and a zero value probability vector. Each subsequent soft-output device processes the coded information and a non-zero value probability vector. The system for soft-decoding Reed-Muller coded information decodes a code-bit reliability vector from a soft-output device to generate an updated codeword reliability vector, which is used by a next decoding block in a sequence of decoding blocks to reprocess the coded information using the updated reliability vector. The reliability vector is updated through processing in each decoding block to optimize the reliability vector for extraction of the transmitted information from the received information.